

WHAT IS CLAIMED IS:

1           1. A unitary absorbent core having a basis weight of about 75 gsm or greater,  
2 comprising a fibrous absorbent layer having an upper fluid receiving surface and a lower surface  
3 with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the  
4 absorbent layer.

1           2. The unitary absorbent core of claim 1, wherein the absorbent layer comprises  
2 natural fibers, synthetic fibers or a mixture thereof.

1           3. The unitary absorbent core of claim 1, wherein the hydrophobic moisture  
2 barrier comprises a hydrophobic material which at least partially coats the fibers of the lower surface  
3 of the absorbent layer.

1           4. The unitary absorbent core of claim 3 wherein the hydrophobic material is a  
2 natural or synthetic polymer.

1           5. The unitary absorbent core of claim 1 further comprising from about 5 to  
2 about 90 percent by weight of SAP.

1           6. The unitary absorbent core of claim 1, wherein the core has a basis weight of  
2 from about 80 gsm to about 1000 gsm.

1           7. The unitary absorbent core of claim 6, wherein the core has a basis weight  
2 of from about 100 gsm to about 500 gsm.

1           8. The unitary absorbent core of claim 1, wherein the core has a density of from  
2 about 0.03 to about 0.7 g/cc.

1           9. The unitary absorbent core of claim 8, wherein the core has a density of from  
2 about 0.04 to about 0.3 g/cc.

1           10. The unitary absorbent core of claim 1 having a hydrohead of 30 mm or more.

1                   11. The unitary absorbent core of claim 10 having a hydrohead of 50 mm or more.

1                   12. The unitary absorbent core of claim 11 having a hydrohead of 70 mm or more.

1                   13. The unitary absorbent core of claim 1 having a strikethrough of 1.8 g or less.

1                   14. The unitary absorbent core of claim 13 having a strikethrough of 1.2 g or less.

1                   15. The unitary absorbent core of claim 14 having a strikethrough of 0.7 g or less.

1                   16. The unitary absorbent core of claim 1 having an air permeability of 18  
2                   m<sup>3</sup>/min/m<sup>2</sup> (60 ft<sup>3</sup>/min/ft<sup>2</sup>) or greater.

1                   17. The unitary absorbent core of claim 1 having a water vapor transmission rate  
2                   of 500 g/m<sup>2</sup>/24 hr or greater.

1                   18. The unitary absorbent core of claim 17 having a water vapor transmission rate  
2                   of 1000 g/m<sup>2</sup>/24 hr or greater.

1                   19. The unitary absorbent core of claim 18 having a water vapor transmission rate  
2                   of 2000 g/m<sup>2</sup>/24 hr or greater.

1                   20. The unitary absorbent core of claim 19 having a water vapor transmission rate  
2                   of 3000 g/m<sup>2</sup>/24 hr or greater.

1                   21. The unitary absorbent core of claim 1 having a barrier effectiveness value of  
2                   30 mm or greater.

1                   22. The unitary absorbent core of claim 21 having a barrier effectiveness value  
2                   of 50 mm or greater.

1                   23. The unitary absorbent core of claim 22 having a barrier effectiveness value  
2                   of 75 mm or greater.

1                   24. The unitary absorbent core of claim 1, wherein the moisture barrier has a  
2                   structure which substantially is fibers coated with hydrophobic material.

1                   25. The unitary absorbent core of claim 1, wherein the moisture barrier has a  
2 reticulated remnant of a barrier material emulsion extending from the lower surface region of the  
3 absorbent layer to form an outer reticulated foam barrier.

1                   26. An absorbent article comprising:  
2                   (a) a liquid pervious top sheet, and  
3                   (b) a unitary absorbent core of claim 1.

1                   27. The absorbent article of claim 22 further comprising a microporous  
2                   backsheet.

1                   28. The article of claim 26, wherein the article is an infant disposable diaper, a  
2 training pant, an absorbent surgical pad, an adult incontinence device, a sanitary napkin, a pantiliner  
3 or a feminine hygiene pad.

1                   29. A process for the production of a unitary absorbent core having a basis  
2 weight of about 75 gsm or greater comprising a fibrous absorbent layer having an upper fluid  
3 receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier  
4 integral with the lower surface of the absorbent layer comprising:  
5                   (a) producing a fibrous absorbent layer having upper and lower surfaces,  
6                   (b) applying to the lower surface of the fibrous absorbent layer a hydrophobic  
7 material which at least partially coats at least some of the fibers of the lower surface of the  
8 absorbent layer.

1                   30. The process of claim 29, wherein the fibrous absorbent layer comprises natural  
2 fibers, synthetic fibers or a mixture thereof.

1                   31. The process of claim 29, wherein the hydrophobic material is a natural or  
2 synthetic polymer.

1                   32. The process of claim 29, wherein the core comprises from about 5 to about  
2 90 percent by weight of SAP.

1                   33. The process of claim 29, wherein the hydrophobic material is an emulsion  
2 polymer.

1                   34. The process of claim 23, wherein the emulsion polymer is applied in the form  
2 of a foam.

1                   35. The process of claim 34, wherein the emulsion polymer includes a foam  
2 stabilizer.

1                   36. Process of claim 34, wherein the emulsion polymer includes a  
2 hydrophobicity agent.

1                   37. The process of claim 29, wherein the fibrous absorbent layer is a nonwoven  
2 produced by an airlaid process.

1                   38. The process of claim 29, wherein the unitary absorbent core comprises two  
2 or more fibrous strata where each stratum is produced in a separate unit operation as part of a  
3 continuous process.

1                   39. The process of claim 38, wherein the unitary absorbent core comprises three  
2 or more fibrous strata.

1                   40. The process of claim 29, wherein the process comprises providing a tissue  
2 having a basis weight of less than about 30 gsm, spraying the tissues with emulsion polymer binder  
3 having a dry basis weight of about 10 gsm or less and airlaying a fibrous stratum thereupon.

1                   41. The process of claim 40, wherein the fibrous stratum contains fifty percent or  
2 more by weight of eucalyptus fibers.

1                   42. The process of claim 29, wherein the unitary absorbent core comprises one  
2 or more strata which are multibonded with an emulsion polymer binder and thermal bicomponent  
3 fiber binder.

1                   43. The process of claim 29, wherein the moisture barrier produced has a structure  
2 which at least partially coats the fibers at the surface of the absorbent layer with hydrophobic  
3 material.

1                   44. The process of claim 29, wherein the moisture barrier produced has a  
2 reticulated remnant of a barrier material emulsion extending from the lower surface region of the  
3 absorbent layer to form an outer reticulated foam barrier.

1                   45. A unitary absorbent core produced by the process of claim 29.

1                   46. A breathable nonwoven fibrous material having a basis weight of about 75  
2 gsm or greater, a barrier effectiveness value of 30 mm or greater, and having a surface with a  
3 hydrophobic vapor-transmissive moisture barrier integral therewith comprising natural fibers,  
4 synthetic fibers or a mixture thereof, and a hydrophobic material which at least partially coats the  
5 fibers of a surface of the material.

1                   47. A breathable, partially fibrous or nonfibrous nonwoven material or structure  
2 having a basis weight of about 45 gsm or greater, a barrier effectiveness value of 30 mm or greater,  
3 and having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith, the  
4 material or structure comprising one or more spunbonded, meltblown, coformed, bonded carded, or  
5 foamed constituents, optionally in combination with natural fibers, synthetic fibers or a mixture  
6 thereof.

1                   48. The nonwoven material or structure of claim 47, wherein the foamed  
2 constituent is a high internal phase emulsion (HIPE) foam.

1                   49. The nonwoven material or structure of claim 47, wherein the material or  
2 structure is a combination comprising from about 50 to about 99 percent by weight of natural fibers,  
3 synthetic fibers or a mixture thereof.

1           50. The nonwoven material or structure of claim 47, wherein the material or  
2 structure has been produced in a unitary process.

0 9 8 3 5 4 1 2 9 0 9 4 1 0 4